

APPENDIX D

SAFETY**Section I. INTRODUCTION****D-1. Safety Policy and Program**

An effective safety program is essential to any unit. Leaders must stress the importance of constant vigilance to detect potential hazards and reduce or eliminate these hazards.

a. Policy. The safety policy of the Army is to reduce and keep to a minimum accident man-power (and monetary) losses, thus providing more efficient use of resources and advancing combat effectiveness.

b. Program. The unit safety program should be designed to cover all operations and take into consideration all conditions peculiar to the specific operation of the unit. Implementation of the program includes the establishment of a safety organization consisting of a unit safety officer responsible for the supervision and coordination of all unit safety activities and other personnel as required to assist him (see AR 385-10).

D-2. Responsibility for Accident Prevention

a. Commander. The hospital commander must establish and promote safety and occupational health directives and policies to protect personnel and equipment under his command. He must coordinate and integrate these directives and policies with those of higher headquarters and other commands and Services. The hospital commander appoints a qualified individual as the hospital safety officer (see AR 385-10).

b. Hospital Safety Officer. The hospital safety officer serves as a principal adviser to the commander. He manages the safety program by integrating safety into all functions conducted within the hospital. He must continuously monitor the safety program for effectiveness and identify new methods for accident prevention.

c. Supervisors. Supervisors enforce command safety directives and policies through specific training programs, routine inspections of work areas, accident investigations, and prompt evaluation and action to eliminate or minimize potential hazards identified by personnel.

d. Individuals. All personnel should be made to realize that safety rules have been established for their protection. It is their responsibility to report all unsafe conditions/acts, accidents, and near misses to their immediate supervisor; to follow all instructions; and to properly use all personal protective equipment and safeguards.

D-3. Principles of Accident Prevention

An effective safety program depends on the proper application of the following principles of accident prevention:

a. Stimulation of Interest. Emphasis on safety must be vigorous and continuous, and it must originate with the hospital commander. Group discussions, safety meetings, bulletin board notices, posters, and recognition of individuals for participation create interest in the safety program.

b. Applicability. Practical safety controls should be provided in all planning, training, tactical operations, professional activities, and off-duty activities.

c. Fact Finding. This refers to the assembly of information bearing upon the occurrence and prevention of accidents. For each accident, the following facts should be determined:

- (1) Who was injured, and what was damaged.
- (2) The time and place where the accident or injury occurred.
- (3) The severity and cost of the accident or injury.
- (4) The nature of the accident or injury.
- (5) Measures that can be instituted to guard against future recurrences.

d. Corrective Action Based on Facts. Any corrective action that is adopted should be based on available and pertinent facts surrounding the accident or injury. Near accidents also should be reported with all available information so that hazards and unsafe procedures or conditions can be eliminated. Similarly, any procedure or condition which might be dangerous should be reported so that remedial action can be instituted.

e. Safety Education and Training. The objectives of safety education and training are to develop the individual's safety awareness so he performs his tasks with minimal risk to himself and to others.

f. Inspections. The purpose of safety inspections is to eliminate the cause of accidents through specific, methodical procedures.

D-4. Safety Plan

Many items that can be included in any safety plan are listed below, but the list is neither all-inclusive nor restrictive. Certain conditions or geographical areas may require guidance to conform with those needs. Precautions for certain medical/dental procedures or equipment are included here.

a. Accident Reporting. Basic to any safety plan is accident reporting. A definite procedure should be established that emphasizes prompt and complete reporting of all accidents or injuries (AR 385-40).

Supervisors must investigate all accidents and injuries, and when needed, seek the assistance of the safety officer to determine the cause(s) and take corrective action to prevent their recurrence. Any accident resulting in damage to equipment should be reported immediately. Continued operation of damaged equipment can subsequently result in injuries to personnel.

b. Safety Color Code Markings and Signs. The safety color code prescribes the use of color combinations that are effective in preventing accidents and in improving production, visual perception, and housekeeping. The code defines the application of colors for such specific purposes as the uniform markings of physical hazards, showing the location of safety equipment, identifying fire-fighting equipment, and designating colors to be used if local conditions warrant the use of color coding (AR 385-30).

c. Fire Prevention.

(1) A hospital fire plan or a fire standing operating procedure (SOP) should be included in the safety program. It should contain fire prevention guidance and information on what to do if a fire occurs.

(2) **NO SMOKING** signs should be posted wherever fire hazards exist, such as oxygen administration and flammable materials storage areas. Smoking should be permitted only in designated safety areas. Fire-fighting equipment should be available, and all personnel should be familiar with its location and operation. This equipment should be inspected frequently to determine if it is serviceable and operative. Fire drills should be conducted often enough for all personnel to be familiar with the procedures. Guard personnel should be alert to fire hazards at night. Gasoline, oil, paint, and other flammables should be stored in approved locations and in authorized containers. Oxygen and acetylene tanks must be stored separately and apart from other flammables. Electrical power cables should not be exposed to vehicular and/or foot traffic.

d. Generators. Generators in the field produce the same potential electrical hazards that are found with electricity at permanent installations and demand the same precautions. Only those personnel who have been properly trained and certified on the use of power generation equipment should handle or work with this equipment. Personnel working around generators or electrical wiring should remove rings and watches. Generators should be grounded and not refueled while they are in operation. Generators used for patient treatment areas should be located to reduce, as much as possible, their noise in the operative area (military-owned demountable containers [MILVANs] strategically placed in proximity to generators serve as excellent noise buffers).

e. Housekeeping. Professional and administrative areas must be kept clean and orderly at all times. Hazards to personnel and equipment can be eliminated or controlled by enforcing high housekeeping standards.

f. Heaters. When heaters are used, they should be watched closely for a potential tent fire. Spark arresters or flue guards on stove exhaust pipes and metal shields in stovepipe openings in tents should be used when heaters are in operation. Fire guards are required when stoves are in use to monitor stoves for correct operations and alert others of any potential fire hazards.

g. M-2 Burners. The M-2 burner unit is a heat source used in the nutrition care division and CMS. These units require safety precautions and trained operators who know what to do if the burners malfunction or a fire starts. The commander may require a licensed operator to operate the burners. The burner units have a U-shaped tank containing fuel under pressure. When burners are used, they should be closely monitored because of potential fire and safety hazards. Burners must be used in well-ventilated areas because of the buildup of carbon monoxide gas produced.

h. Vehicle Operation. Army Regulation 385-55 contains guidance on government vehicle operation.

i. Weapons and Ammunition. Continual command emphasis should be directed toward training each individual in the hospital in the handling of weapons and ammunition. Training should begin when an individual joins the hospital. Commanders should ensure that all personnel are briefed on the handling of weapons which accompany patients to the treatment facility. Weapons of hospital personnel should be cleared and placed on safety until required otherwise. Army Regulation 190-11 and FM 19-30 provide guidance on the physical security of weapons and ammunition.

D-5. Accident Investigation and Reporting

a. Investigations. Accident investigation is necessary for accident prevention. Investigation seeks to determine the cause of accidents by finding the elements and sources from which accidents develop. Corrective measures may then be instituted.

b. Reporting. In accordance with AR 385-40, the Army accident reporting system provides for the initial reporting of accidents at unit level. This is done to notify the higher echelon of the command that a mishap has occurred; to record information that will identify causes and corrective actions, indicate trends, and provide a basis for formulating future plans; and to evaluate progress in accident prevention.

Section II. DEPLOYED MEDICAL UNIT SAFETY CONSIDERATIONS

D-6. X-Ray Protective Measures and Standards

a. General. Every possible safety precaution must be used when operating radiographic equipment. If all safety rules are strictly adhered to, medical personnel should receive virtually no radiation dose and the patient's exposure will be minimized.

b. Medical Personnel Protection and Standards.

(1) *Radiation monitoring.* Army Regulation 40-14 prescribes monitoring practices for Army personnel. It requires each person who is occupationally exposed to ionizing radiation and who may receive an accumulated dose equivalent in excess of 10 percent of the stochastic limit of 5 rems/year total effective

dose equivalent; or 10 percent of the nonstochastic limit of 50 rems/year total effective dose equivalent to any individual organ or tissue other than the lens of the eye to wear a dosimeter. The unit's medical supply personnel should coordinate dosimeter support through the US Army Ionizing Radiation Dosimetry Center, ATTN: AMSMI-TMDE-SR-D, Redstone Arsenal, AL 35898-5400, Defense Switched Network (DSN) 746-7634/7674 or commercial 205-876-7634/7674 or issue the IM-9 pocket dosimeters. The dosimeter monitors the amount of radiation received by the individual. If worn, the whole body dosimeter will be worn below the shoulders and above the hips on the outside of the clothing and the lead apron. The results are recorded on an automated dosimetry record by the US Army Ionizing Dosimetry Center. The automated dosimetry record will be reviewed by the hospital radiologist quarterly and then the record is kept permanently as part of the individual's health record.

(2) *Care and handling of dosimeter.* When not being used, dosimeters will be stored in a radiation protection officer-approved area which is close to the area in which occupationally exposed individuals work, yet outside the areas where the radiation -source devices are actually used or located. The storage area must be adequately shielded and contain a control dosimeter. Dosimeters should be marked to preclude personnel using each other's dosimeters.

(3) *Radiation standards.* For the personnel operating radiographic equipment, an accumulated whole body dose, in rems, must not exceed the stochastic limit of a total effective dose equivalent of 5 rems/year. The nonstochastic limit of a total effective dose equivalent of 50 rems/year to any individual organ or tissue other than the lens of the eye; an eye-lens dose equivalent of 15 rems/year; and a limit of 50 rems to the skin or to any extremity.

(4) *Protective shielding.* Fixed facilities use lead shielding to protect those working in the area where X rays are taken. However, the potential of finding lead-lined facilities in a deployed environment is limited. When deployed hospitals use buildings of opportunity, the following should be considered:

- When using field x-ray apparatus in a building of opportunity, a major consideration is the location of a room or an isolated area where access can be easily controlled. This area should have at least one, preferably two, walls common to the building exterior. Adjoining rooms should be unoccupied.
- The upright chest bucky should be oriented towards the outside wall and away from the operator.
- The x-ray apparatus should be positioned to maximize the distance from the back of the x-ray tube head to the operator. The apparatus should be positioned so that the x-ray beam will not routinely be directed toward occupied space or heavily traveled passageways.
- The operator should wear a lead apron or stand behind a lead-lined protective barrier when the apparatus is used.
- The unoccupied area outside the building should be cleared of personnel and properly marked off for at least 50 feet from the x-ray head. This exclusion area should include all potential areas toward which the x-ray beam may be directed. The 50-foot exclusion area fulfills the requirements of Technical Bulletin Medical (TB MED) 521 for all ionizing radiation-producing equipment and is meant to control the continuous occupancy of this area.

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(5) *Patient protection.* Use all means available to reduce the patient's exposure to ionizing radiation. The following practices will help:

- Take only those X rays that are required for diagnosis and treatment.
- Avoid improper positioning, improper exposure techniques, and faulty film processing techniques.
- Use a lead apron or gonadal shielding, if practical, to protect portions of the patient's body which are not in the direct x-ray beam.
- Check the patient's medical history.
- Use the most sensitive emulsion film available.
- Use proper collimation. Image size should be as small as possible but still include all the area of interest.

(6) *X-ray processing.* When working with the film-processing chemicals, personnel will use protective eyewear, gloves, and aprons.

D-7. Hearing Conservation

a. Department of the Army Pamphlet 40-501 provides the guidance on unit hearing conservation programs.

b. Units should contact the PVNTMED activity of the area medical support activity for identification of noise hazardous equipment, job sites, and exposed personnel. This is to be accomplished by conducting sound level surveys on field equipment (that is, compressors, generators, medical and dental handpieces, field laboratory equipment, and military vehicles). These data are used to identify individuals who will require hearing protection fitting, medical surveillance, and health education.

c. Personnel identified in this survey are entered in the hearing conservation program and monitored by the medical unit for response to noise exposure and adequacy of hearing-protective devices by the periodic testing of hearing levels. Audiograms are conducted annually, as a minimum.

d. Hearing protectors are issued to all unit personnel. Their use will be required when operating or in proximity to noise hazardous equipment such as (but not limited to) generators, compressors, field laboratory equipment, and tactical vehicles, 2" tons and larger. Areas around this equipment should be identified by placing **NOISE HAZARDOUS AREA, HEARING PROTECTION REQUIRED** signs as directed in the hospital's TSOP.

e. Noise hazardous equipment such as generators and compressors should be sandbagged as directed by the hospital's TSOP to reduce the noise hazard and noise signature.

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D-8. Compressed Gas Cylinders

All compressed gas cylinders should be considered full for handling purposes. They should never be dropped or struck by any object. While cylinders are being transported in vehicles, they should be restrained to prevent them from falling. Cylinders must be protected from dampness and excessive temperatures. Smoking is prohibited near a cylinder. Valve protection caps must be installed on each cylinder. Oxygen should be stored in areas separated from other gases by at least 50 feet. Oxygen should be separated from acetylene by at least 100 feet. Gases used in laboratory procedures require caution in handling. All compressed gas cylinders should be labeled and tagged with the contents of the container to avoid confusion of what material is in each cylinder.

D-9. Flammable, Explosive, or Corrosive Materials

These materials must be kept in approved safety containers and away from any potential source of ignition. Acids used in laboratory procedures should be stored in noncorrosive containers and cabinets designed to hold caustic/corrosive material.

D-10. Special Equipment

Individuals using high-speed medical/dental units and those working in the laboratory should use plano cylinder or prescription safety eyewear to prevent injuries to their eyes.

D-11. Department of Defense Federal Hazard Communication Training Program

Department of Defense Instruction 6050.5 directed the elements of DOD to develop a training program to meet the requirements of the Occupational Safety and Health Act (OSHA) Hazard Communication Standard (29 CFR 1910.1200). The OSHA issued this standard to ensure everyone's right to work in a safe environment. It requires that everyone understand the hazards of the materials they work with and know how to minimize these hazards. It requires supervisors to develop and maintain current listings of all hazardous materials used at a work site and the specific hazards of each material. Material Safety Data Sheets must be maintained at each work location, and personnel should be trained in the hazards of their occupation.

D-12. United States Army Center for Health Promotion and Preventive Medicine

There are PVNTMED assets located within each division and at corps level. These units have subject matter experts in most areas of environmental health, sanitation, industrial hygiene, and occupational health. The mission of PVNTMED is to provide guidance to unit commanders on compliance with DA and Federal requirements in these areas. Additionally, the USACHPPM has the mission of looking out for the soldiers' welfare worldwide. The USACHPPM is an excellent source for advice and assistance in areas related to environmental quality or occupational health. Any Army official safety representative (for

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example, unit safety officer) can request assistance from this organization. Potential areas for assistance include, but are not limited to—

- Technical assistance on monitoring the use of ionizing radiation, telephone: DSN 584-3548/3502.
- Hospital hazardous waste management on-site CONUS/OCONUS visits, DSN 584-3651.
- Hospital safety program on-site visits, CONUS/OCONUS, DSN 584-3040.

The USACHPPM also provides document review services which may be of assistance in evaluating unit safety, PVNTMED, and field sanitation programs. Requests for on-site visits should be coordinated in advanced with higher headquarters, particularly for OCONUS locations.

D-13. Infection Control

Special precautions must be taken during patient treatment procedures to avoid the transmission of infections. Infection control, to include medical waste disposal, is covered in Appendix C. Detailed guidance on infection control will be provided in the department's, division's, and section's TSOP.